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TEXAS AGRICULTURAL EXPERIMENT STATION

B. YOUNGBLOOD, DIRECTOR

COLLEGE STATION, BRAZOS COUNTY, TEXAS

BULLETIN NO. 350 APRIL, 1927

DIVISION OF CHEMISTRY

FERTILIZER STATISTICS FOR TEXAS

AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS

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†As of April 1, 1927.
*On Leave.
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****In cooperation with the School of Agriculture.

SYNOPSIS

This Bulletin contains statistics of fertilizer sold in Texas. The tonnage sold increased from 13,500 tons in 1905-06 to 126,180 tons in 1923-24; there was a decrease to 121,747 tons in 1925-26; and there were large decreases in 1914-15 and 1920-21. Sales by months are largest in January, February, and March, with the heaviest movement usually in March. Fertilizer consumption by counties is shown by a table and a map. The largest consumption is in the Northeastern part of the State. The tonnage of various formulas is given for the first four years, and an estimate made of the average composition of all fertilizer for the State and for selected counties. Estimated prices of plant food are given. The sales of fertilizer in the spring are partly related to the price of cotton in the preceding fall and winter. This is shown by statistical methods.

CONTENTS

FERTILIZER STATISTICS FOR TEXAS

G. S. FRAPS

A Texas fertilizer law was first passed in 1899. The law was changed in 1911, effective September 1, and has not been changed since. Various statistics concerning fertilizer have been collected during this period of time. Requests are constantly being received for information of various kinds; some of this information is available, but much of it is not. The object of this Bulletin is to present statistics which have been collected for a number of years.

Fertilizer Control Bulletins

A list is given in Table 1. This does not include research bulletins.

Table 1.—Fertilizer Control Bulletins, Texas

(1)	Bulletin No.	51, May	1899
(2)	Bulletin No.	67, July	1903
(3)	Bulletin No.	67, July. Reprinted December	1903 1904
(4)	Bulletin No.	85, June	1906
(5)	Bulletin No.	96, July	1907
(6)	Bulletin No.	107, July	1908
(7)	Bulletin No.	123, July	1909
(8)	Bulletin No.	133, September	1910
(9)	Bulletin No.	140	1911
(10)	Bulletin No.	149, July	1912
(11)	Bulletin No.	160, July	1913
(12)	Bulletin No.	168, July	1914
(13)	Bulletin No.	176, July	1915
(14)	Bulletin No.	193, August	1916
(15)	Bulletin No.	217, September	1917
(16)	Bulletin No.	233, September	1918
(17)	Bulletin No.	248, August	1919
(18)	Bulletin No.	265, August	1920
(19)	Bulletin No.	280, August	1921
(20)	Bulletin No.	298, August	1922
(21)	Bulletin No.	312, September	1923
(22)	Bulletin No.	322, September	1924
(23)	Bulletin No.	335, September	1925

Tonnage Sold

The number of tons of fertilizer sold each year as reported by the manufacturers is given in Table 2.

Table 2 also contains the tonnage based on tax tags sold. This is larger than the sales actually made, as some of the tags are not used. No figures are given for tag sales before 1911-12; tags were printed separately for each brand of fertilizer, which made it necessary for the manufacturers to order more than they needed. The excess was redeemed at the end of the season. Tags have not been redeemable since 1911.

The sales increased in 1905 to 1914 from 13,500 tons to 77,400 tons, although there was a recession in 1909-10. The sales dropped in 1914-15 to 17,500 tons. There was a large crop of cotton in the

preceding year, accompanied by the outbreak of the World War and a low price for cotton.

Table 2.—Fertilizer sales in Texas in tons

Date	Reported by Manufacturers	Tag Sales
1905–6	13,500	
1906–7	19,200	
1907–8	21,850	
1908–9	23,800	
1909–10	34,000	
1910–11	52,985	
1911–12	46,000	
1912–13	75,500	76,734
1913–14	77,400	83,207
1914–15	17,500	23,012
1915–16	21,500	23,388
1916–17	40,000	40,354
1917–18	58,000	59,575
1918–19	46,000	50,553
1919–20	56,700	56,979
1920–21	14,850	19,303
1921–22	33,000	34,316
1922–23	73,300	76,223
1923–24	126,180	126,592
1924–25	97,720	103,416
1925–26	121,747	123,990

The sales increased from 1914-15 to 1917-18. There was a drop in 1918-19, followed by an increase in 1919-20. In 1920-21 there was another decided decrease in sales, caused by the depression at that time, but sales then increased rapidly to 126,180 tons in 1923-24. This was the largest tonnage yet sold.

Table 3.—Tons of Fertilizer sold as calculated from tag sales, 1925-26

Texas	124,590
Louisiana	115,670
Arkansas	126,332
Alabama	626,214
Georgia	768,735
North Carolina	1,213,057

Table 3 shows the fertilizer tonnage based on tag tax sales for some of the other states. The amounts of fertilizer sold in Texas, Arkansas, and Louisiana are nearly the same. The sales are small compared with those in North Carolina and Georgia.

Sales by Months

Sales of tax tags expressed in tons of fertilizer by months are given in table 4. Table 5 contains the same tag sales expressed in percentages of the total sales for the year. Table 6 contains sales in tons as reported monthly by manufacturers, expressed in percentage of the total sales.

It is to be noted that the largest tag sales occur in January, February, and March, while the heaviest shipments are made in February,

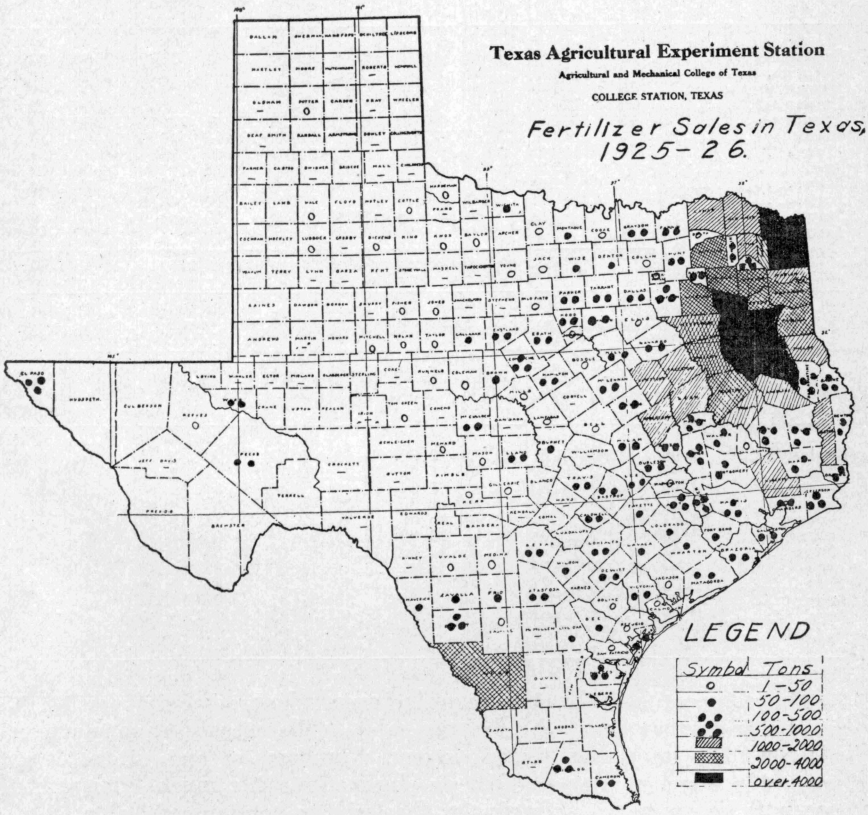

Figure 1.—Fertilizer Sales in Texas 1925-26.

March, and April. About 70 per cent of the total is sold in these three months. The relative distribution varies from year to year. February and March usually have the largest tag sales, while the largest shipments occur in March.

Table 4.—Fertilizer tag sales expressed in tons by months

Month	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25	1925-26
September	2000	1930	4000	1600	5750	1610	2260	2220	2550	3200
October	400	1495	250	500	100	5054	1600	1420	1750	1600
November	1050	9885	805	750	200	500	350	3684	1600	700
December	2650	12190	5150	8100	201	1500	4050	3600	4600	2600
January	7925	10840	14950	10794	5100	4725	17361	27315	17060	21720
February	10678	4760	13670	12212	4573	5260	15495	32155	32460	47120
March	11710	13030	8850	20398	2775	11862	25570	39571	38074	35400
April	3206	5325	2450	2625	405	2909	8813	17750	4559	10475
May	510	120	120	0	5	300	255	500	580	850
June	5	0	50	0	0	121	269	0	25	275
July	100	0	8	0	100	150	100	0	0	600
August	120	0	250	0	0	325	0	0	200	50
Total	40354	59575	50553	56979	19209	34316	76123	128215	103458	124590

Table 5.—Tags sold monthly, expressed in per cent of total for the year

	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25	1925-26	Average of All
September	4.96	3.24	7.91	2.81	29.90	4.69	2.97	1.73	2.46	2.58	6.33
October	.99	2.51	.49	.88	.52	14.73	2.10	1.11	1.69	1.28	2.63
November	2.60	16.60	1.52	1.32	1.04	1.46	.46	2.87	1.55	.56	3.00
December	6.57	20.46	10.19	14.22	1.05	4.37	5.32	2.80	4.44	2.09	7.15
January	19.64	18.20	29.61	18.94	26.56	13.77	22.80	21.31	16.50	17.44	20.48
February	26.46	7.99	27.08	21.42	23.82	15.33	20.34	25.08	31.39	37.83	23.65
March	29.02	21.86	17.50	35.80	14.45	34.56	33.60	30.86	36.80	28.40	28.29
April	7.94	8.94	4.85	4.61	2.11	8.48	11.60	13.85	4.40	8.40	7.52
May	1.26	.20	.24	.00	.03	.87	.33	.39	.56	.68	.46
June	.01	.00	.10	.00	.00	.35	.35	.00	.02	.22	.11
July	.25	.00	.02	.00	.52	.44	.13	.00	.00	.48	.18
August	.30	.00	.49	.00	.00	.95	.00	.00	.19	.04	.20

The tonnage sold by the manufacturers show somewhat different results from that shown by the tag sales. The actual shipments take place a little later than the tag sales. Purchases of tags in the early part of the season may be used on shipments made much later. The two may be compared by means of the last two columns of Table 6.

Sales by Counties

The Texas fertilizer law requires the manufacturers to report each sale or shipment to the State Chemist, within three days.

Table 6.—Fertilizer sales in per cent of total reported by manufacturers

Month	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25	1925-26	Average
September	.68	.70	.71	1.44	1.12	.58	.35	.63	.44	.74
October	1.06	.99	1.17	4.60	2.02	.90	.26	.54	.79	1.37
November	2.40	.40	.41	2.13	.85	.49	.72	.20	.62	.92
December	4.50	1.00	1.06	2.70	2.01	1.23	1.16	2.02	.57	1.81
January	22.20	19.14	12.70	12.00	9.80	13.50	9.86	6.10	4.15	12.16
February	25.11	27.80	23.80	16.00	20.60	19.80	20.92	21.40	24.82	22.25
March	27.40	27.20	40.60	16.41	38.13	41.71	35.21	47.43	47.32	35.70
April	16.02	16.95	18.57	32.90	21.35	19.75	30.25	19.61	18.21	21.51
May	.00	5.20	.71	7.72	2.43	1.06	.85	.70	2.14	2.31
June	.61	.25	.00	1.63	.30	.25	.20	.20	.36	.42
July	.00	.08	.00	.20	.60	.63	.08	.54	.38	.28
August	.00	.29	.27	2.31	.80	.09	.14	.63	.20	.53

Table 7 contains sales by counties for several years as tabulated from the reports above mentioned. This tabulation gives an idea of the relative use of fertilizers in the various counties of the State, but it is not strictly correct. Fertilizers shipped into one county may be used in an adjoining county. The reports of the manufacturers are sometimes not complete and shipments are sometimes reported twice, and these errors are, of course, not uniformly distributed.

The map shows the distribution of fertilizer sales by counties for 1924-25. The greatest consumption of fertilizer is in the northeastern part of the State.

Formulas of Mixed Fertilizer Sold

A large number of fertilizer formulas has been registered annually until 1925-26. About 165 different formulas were registered in 1923-24. Table 8 contains a list of the formulas of all fertilizers registered in 1924-25. The adoption of standard fertilizer formulas probably increased the number of different formulas registered the first year, but the number has been decidedly reduced during the season of 1925-26. There are many decided advantages in having a small number of formulas for fertilizers.

Table 7.—Fertilizer sales by counties, tons

County	1911–12	1912–13	1913–14	1914–15	1915–16	1916–17	1917–18	1918–19	1919–20	1920–21	1921–22	1922–23	1923–24	1924–25	1925–26
Anderson	673	965	1021	120	85	305	401	446	358	128	240	730	2266	1518	2240
Angelina	624	989	1214	200	120	263	224	283	182	107	279	576	570	747	1353
Aransas	63	14			12				2	1	2	7	16	5	103
Atascosa		16	17		30	106	170		84	19	144	28	164	382	424
Austin	346	44	78	12	40	112	170	313	73	38	255	391	276	757	994
Bandera		2													
Bastrop	67	101	98	37	1	18	20		59	9	46	153	209	246	252
Baylor													3		1
Bee		5		1	2	2		1	1	3	44	23	2	3	87
Bell		1	4	36	3	4	80	4	2	9		1	1	1	7
Bexar	34	18	11	6	17	19	26	50	18	76	136	50	99	109	24
Bosque	5	9	1		1	1	2	2	1		29		20	20	42
Bowie	902	355	2302	350	404	1638	3160	2413	3379	518	1358	3861	4820	4428	4522
Brazoria	111	402	302	110	120	207	93		28	13	128	63	34	192	288
Brazos	450	449	748	32	140	289	2	190	101	29	60	200	420	444	232
Brewster								1			1				
Brooks											20			68	
Brown		23	1	1	1	1	37	37		1	1	3	1	4	54
Burleson	47	50	47	4	17	1		1	1	17		1	40	134	428
Burnet						1									63
Caldwell	22	57	47			2					29	3	26	106	224
Calhoun	26	73	4			16		1			1	19	24	18	19
Callahan		8		1		3	20					40	1		66
Cameron	21	22		3	10	1	1	240		4	187	117	25	118	431
Camp	400	809	862	120	215		570	345	779	96	148	665	620	551	665
Cass	1394	2350	3064	560	900	2039	3701	2680	3602	28	937	2990	4520	4394	5768
Chambers	446	651	360	460	270	511	305	480	361	101	196	207	184	296	222
Cherokee	2000	2070	3383	1160	1040	1894	2650	2864	2124	1812	2340	2900	5503	4374	6589
Childress		22		1			36	129	54	50		1			0
Clay		2	1				19					3	21	16	15
Coke								60							
Coleman	86	74		20					54			3	15	37	1
Collin	44	56	6	1	1		42					2	3	4	9
Colorado	326	379	155	84	50	98	53	32	10	22	205	79	105	123	97
Comanche	13	48	47		1			2	17	19	4	100	103	112	505
Comal						1	1	1	2						
Concho								32						31	
Cooke	77	15	7		1	15	10	63		20	18	20	7	140	36
Coryell		184	41					1	3	1		3	17	44	
Crosby													1	1	
Cottle															2
Crockett													1		
Dallas	18	19	28	37	56	20	65	36	210	102	99	58	224	263	251

Deaf Smith													3	93	11	40
Delta	17	26	131													
Denton		34	10	9	7	7	30	1	4	4	3	23	109	100	71	
De Witt	30	30	28	15	7	20	2	300	28	13	48	35	314	196	246	
Dickens		33	14										1	31	1	
Dixon													41			
Donley		1	1	1	1		1				2	1				
Dimmit	105	75	2	45	255	254	904		476	193	230	260	202	246	539	
Duval	1	1	1	3										16		
Eastland		41	28	3		2	1		11	25		46	233	211	414	
Ector						2										
Ellis	77	16	21	5	10	3	8	1		1	3	5	22	70	4	
El Paso				16	1		1	25	337	27	525	457	234	874	862	
Erath	228	450	258	12	7	67	1156	70	108	39	175	390	477	270	462	
Falls	29	66	86			21	40	40	34	38	18	50	144	116	112	
Fannin	33	4	14	7		4	8		156	25	32	153	324	573	325	
Fayette	124	28	56	1	39	18	3	2	2		37	17	21	117	58	
Fisher								2							1	
Flint					4	17			24	69						
Foard																
Fort Bend	182	412	63	46	220	82	103	5	4	2	46	19	79	47	66	
Franklin	207	434	551	21	38	175	478	208	759	74	174	947	1041	349	419	
Freestone	609	1140	1675	160	360	907	1372	1000	1521	407	690	2068	2458	2208	1834	
Frio	15	8	10	13	10	36	36	43	268	119	50	22	1	51	61	
Galveston	556	390	575	490	420	32	198	105	252	225	245	610	362	392	446	
Garza						27										
Gillespie		18	31				40	30					17		33	
Goliad	15	28				1			2	22	2	18	1	16	29	
Gonzales	101	195	190	5	18	16		2	124		29	150	368	371	338	
Gray					4											
Grayson	76	136	10	5	4	5	68	2	33	2	38	69	150	242	155	
Gregg	633	2232	1804	430	620	1441	3332	2480	1943	361	1434	3334	5143	3467	3153	
Grimes	646	678	916	50	57	150	73	76	248	1	108	609	1179	736	623	
Guadalupe	36	61	17					2			38	1	3	18	14	
Hale				1								1	2	4	1	
Hall									1							
Hamilton		57	45		13	4						23	54	40	129	
Hardeman				1									1		1	
Hardin	223	248	234	210	137	275	292	240	190	170	256	240	337	397	214	
Harris	1530	1890	1828	680	907	1656	413	1507	1103	261	1084	910	952	1233	909	
Harrison	1501	2990	3348	420	370	965	2880	1030	1605	318	539	3020	4793	2135	3384	
Haskell	1											1		18		
Hays	25			1					1	6				16		
Henderson	760	1426	2111	89	99	346	819	910	1313	196	469	1739	2947	2758	3884	
Hidalgo	80	151	52	120	180	57	30		56	16	109	320	32	151	811	
Hill	13	86	20	4	1	16	3			1		20	53	175	103	
Hood		2		7			72			2	48	62	15	123	439	
Hopkins	554	865	1267	34	260	904	1791	1009	1733	201	196	1839	3450	2114	2499	
Houston	1590	3130	2213	200	257	536	748	1080	492	151	593	2110	3934	3273	3823	
Hunt	206	2	117	60	10	33	127	160	60	38	62	57	385	195	320	

Table 7.—Fertilizer sales by counties, tons—Continued

County	1911–12	1912–13	1913–14	1914–15	1915–16	1916–17	1917–18	1918–19	1919–20	1920–21	1921–22	1922–23	1923–24	1924–25	1925–26
Irion					1	106	1								
Jack				1	1	4							1	37	19
Jackson	119	22	31	4	16			44	34	30	49	90	93	34	15
Jasper	617	866	1057	370	385	719	1411	1015	1052	306	704	450	722	1175	1223
Jeff Davis		32	37	25	13	19									
Jefferson	2130	2600	1820	1610	1350	1699	2514	2240	1249	181	578	450	547	825	762
Johnson		84	18	20	10	17	4	3	5	5	4	36	46	103	249
Jones		2	2									23	91	43	45
Karnes	16	41	34		1			3		22	37	28	12	18	1
Kaufman	249	266	240	97	70	292	382	143	340	189	131	758	1651	927	815
Kendall											43	3			
Kerr	7	39	51	1	1				1		2				15
Klng										1	1	1			
Kleberg											18				
Knox												1	2		2
Lamar	200	176	270		50	184	276	225	573	237	145	780	775	2175	1176
Lampasas	2	2	18								3		6	16	24
La Salle	2	45		1	1	98			45	18	68	37			48
Lavaca	18	71	5	5	14	1	1		1	36	14	30	32	34	76
Lee	48	133	202	13		17	2	13	22		1	22	31	115	121
Leon	788	1323	1283	140	197	354	327	480	486	34	259	1258	2793	1930	1897
Liberty	320	483	446	390		304	983	700	168	99	452	626	928	1158	1048
Limestone	830	1450	1560	97	390	1049	923	562	1758	445	650	1387	1776	2483	1227
Live Oak	44	43												16	83
Llano	42										19			1	172
Lubbock													2	1	1
Lynn														1	
McCulloch	29	3		85	200	325	187	40	101		1	41	44	124	
McLennan	8	19	15	1	44	19	49	12	14	5	84	5	79	144	177
Madison	490	671	531	30	34	144	36	43	227	63	159	356	583	1712	958
Marion	500	698	747	130	218	362	569	130	551	193	192	838	1258	1286	1592
Martin															
Mason			1								1				20
Matagorda	61	95	75	28	50	34	327	152	163	2	666	53	257	93	121
Maverick		23												32	59
Medina	17	17									29		19		35
Menard												1	1	15	7
Midland				4		1							1		
Milam	329	691	835	160	75	234	18	120	179		19	74	342	194	260
Mills	22	1					31	43				40	31	25	35
Mitchell						14							1		2
Montague	42	7	22	1	1	46	2		3	1	1	3	41	47	96
Montgomery	223	447	490	140	25	232	182	100	162	192	188	129	283	354	274
Morris	964	1956	1775	350	830	1488	2216	1044	2108	86	705	1959	2093	1849	1958

Motley																
Nacogdoches	1717	3329	3551	460	460	1218	2323	2320	1780	497	1160	3828	4353	3278	4942	
Navarro	61	13	15	1	22	22	19	36	2	4	42	126	186	374	420	
Newton	131	150	210	50	55	157	120	143	160	38	70	108	96	288	299	
Nolan								15	62			1	1		1	
Nueces	64	3	48	5	30	12	2		22	1	1	19	89	119	504	
Oldham												1	1			
Orange	575	1034	520	760	780	1214	764	410	714	63	174	174	37	399	244	
Palo Pinto	80	193	131	34	30	2	1			3		40	21	16	19	
Panola	2088	3866	4036	270	340	710	1522	850	847	309	750	2588	3060	1913	2760	
Parker		49	9	14	3	15	15	12	16	47	43	80	111	197	290	
Parmer		27		5												
Pecos		12	32	40	30	244	332	424	467	262	287	490	223	216	154	
Polk	163	322	440	60	9	53	58	110	19	25	19	119	390	400	895	
Potter				1	1	1		1				1	1		1	
Rains	17	38	17		1		39	29	90	1	23	17	126	85	142	
Red River	66	93	170	5	33	65	127	102	343	51	119	535	2472	1198	1481	
Reeves	54	18	103	30	16	51	83	17				73	69	31	45	
Refugio					1			4				1			19	
Roberts					1											
Robertson	800	952	1049	80	390	529	211	1290	704	131	273	926	2021	1675	1770	
Rockwall		2	2											1	3	
Runnels	10								3	19		34	64		16	
Rusk	2682	4877	4202	790	1400	2538	2817	2799	3343	803	1889	5095	8097	4173	6262	
Sabine	288	476	590	78	40	178	354	585	396	138	426	625	717	532	979	
San Augustine	1164	1663	1607	200	260	750	1261	920	603	255	630	1328	1130	783	945	
San Jacinto	48	98	93	1	16	1	3					7		1	17	
San Patricio	157	39	81	90	110	76				30	18	76	125	336	481	
San Saba			1	1		16							1			
Scurry													26			
Shackelford		3														
Shelby	1360	3798	3449	380	230	589	996	860	668	212	939	2089	2816	1370	1488	
Smith	1841	3334	3613	640	589	1469	2701	1640	2374	1024	2448	3770	6297	4926	6781	
Somervell													2		21	
Starr	42	19	1													
Stephens													1			
Sutton																
Swisher																
Taylor													16		17	
Tarrant	12	188	190	20	7	35	34	32	33	54	39	78	305	258	110	
Throckmorton		32														
Titus	215	403	564	130	170	316	527	470	734	63	135	943	1990	2830	1074	
Tom Green		1	2							1	18	27	16		34	
Travis	81	30	1	2	3		111			21	23	13	18	47	100	
Trinity	420	628	603	80	127	272	297	260	68	84	100	245	1000	717	1059	
Tyler	324	560	764	140	115	247	299	310	248	82	220	426	404	585	879	
Upshur	525	990	1281	320	420	953	1165	970	1762	122	439	1529	2754	1817	2131	
Uvalde	1	1							34					118	48	
Val Verde		1			60	127			39				28			
Van Zandt	418	806	1120	80	75	348	704	750	1260	175	239	1948	2777	2162	2013	
Victoria	42	109	50	1	16	26			1	1	7	55	51	135	159	

Table 7.—Fertilizer sales by counties, tons—Continued

County	1911–12	1912–13	1913–14	1914–15	1915–16	1916–17	1917–18	1918–19	1919–20	1920–21	1921–22	1922–23	1923–24	1924–25	1925–26
Walker	84	284	181	55	18	18	56	.....	.....	58	1	100	207	205	441
Waller	975	795	1130	440	175	687	518	420	657	287	429	464	501	804	700
Ward	440	602	577	300	650	465	699	246	292	22	216	49	15	75	187
Washington	45	1	20	3	1	.....	1	.....	1	.....	.....	1	34	82	43
Webb	1531	1958	1640	1450	2640	2061	1792	610	2404	906	1709	866	1377	2542	2805
Wharton	192	277	7	15	16	27	18	22	53	1	117	60	45	30	76
Wichita	.....	5	3	7	.....	.....	.....	.....	.....	1	2	5	8	30	81
Wilbarger	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	17	36	.....	.....
Winkler	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Williamson	1	27	3	.....	.....	4	5	.....	.....	.....	.....	38	.....	.....	.....
Wilson	31	59	53	.....	.....	21	.....	22	.....	.....	.....	18	126	22	.....
Wise	.....	10	3	6	1	2	3	1	6	1	1	36	31	73	82
Wood	695	1320	2090	230	320	755	1268	1156	2927	384	467	24	28	42	85
Young	.....	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	1776	3372	2819	2568
Zavalla	45	18	2	3	.....	32	1	.....	59	51	60	19	.....	.....	20
												75	41	.....	96

Table 8.—Fertilizer formulas listed in Bulletin 335 (1924-25) with number of registrations of each. The formulas marked (a) are unmixed materials

Fertilizer Formula	Number Registered	Fertilizer Formula	Number Registered
0–0–12 (a)	4	8–2.47–8	1
0–0–12.40 (a)	5	8–2.50–1	1
0–0–12.50 (a)	2	8–2.50–4	5
0–0–14 (a)	6	8–2.50–5	1
0–0–15 (a)	1	8–3–0	1
0–0–20 (a)	6	8–3–1	1
0–0–30 (a)	1	8–3–3	8
0–0–48 (a)	3	8–3–4	2
0–0–49 (a)	1	8–3–5	1
0–0–50 (a)	14	8–3.20–6	4
0–2.80–0 (a)	1	8–3.29–0	1
0–5.70–0 (a)	1	8–3.29–2	1
0–5.76–0 (a)	1	8–3.29–4	4
0–8.22–0 (a)	1	8–3.29–6	2
0–13.15–0 (a)	1	8–3.30–4	2
0–14.12–40 (a)	1	8–3.30–6	2
0–14.50–0 (a)	1	8–3.50–0	1
0–14.82–0 (a)	5	8–4–0	1
0–14.85–0 (a)	1	8–4–2	2
0–15–0 (a)	13	8–4–4	23
0–15.50–0 (a)	4	8–4–5	1
0–15.60–0 (a)	1	8–4–6	11
0–20–0 (a)	4	8–4.11–7	2
0–20.56–0 (a)	1	8–4.92–3	1
0–20.58–0 (a)	2	8–4.94–0	1
0–20.75–0 (a)	1	8–6–3	1
0–20.77–0 (a)	1	8–6–4	1
0–20.80–0 (a)	1	8–5–4	1
0–21.30–0 (a)	1	8–7–0	8
1–6.88–1 (a)	2	8–7–2.50	1
1.25–2–2 (a)	1	8.50–2.50–0	1
1.50–4–0 (a)	1	8.50–3.30–1	1
1.50–6.58–1 (a)	1	9–1.65–2	10
2–6.88–1 (a)	1	9–2–1	7
2–13.16–0 (a)	1	9–2–2	1
3–8.33–1.50	1	9–2–4	1
4–6.17–2.50	1	9–2.05–3	1
4–10–0	1	9–2.47–0	1
5–10–0	1	9–2.47–3	2
6–2–16	1	9–3–0	1
6–2.47–2	1	9–3–2	1
6–2.47–4	2	9–3–3	8
6–3.29–2	1	9–3.29–0	1
6–3.29–3	1	9–3.29–3	1
6–3.29–4	1	9–3.30–5	1
6–3.29–8	1	9–3.40–0	1
6–6–2	1	9–3.50–0	1
6–6.58–0	1	9–4–2	1
6–8–4	1	9–4–4	1
7–3–1	1	9–4.30–3	1
7–3.70–0	1	9–7–5	4
7–3.70–3	1	9.50–1.65–1.50	1
7–4.11–6	2	10–0–2	7
7–4.12–5	1	10–0–4	10
7–5–5	6	10–0–14	1
7–9.87–0	1	10–1–1	1
7–2.06–3	1	10–1.65–0	4
7.50–2–3	1	10–1.65–1	25
7.50–2.50–1	2	10–1.65–1.50	9
8–1.65–2	5	10–1.65–2	29
8–2–2	3	10–1.65–3	2
8–2–4	2	10–1.65–4	2
8–2–6	1	10–2–2	15
8–2.06–1.50	1	10–2–4	3
8–2.06–6	1	10–2.46–5	1
8–2.46–3	1	10–2.47–0	2
8–2.47–1	2	10–2.47–1	2
8–2.47–2	2	10–2.47–1.50	2
8–2.47–3	2	10–2.47–3	6
8–2.47–4	2	10–2.47–4	2
8–2.47–5	2	10–2.47–5	2
8–2.47–6	1	10–2.47–8	2

Table 8.—Fertilizer formulas listed in Bulletin 335 (1924-25) with number of registrations of each. The formulas marked (a) are unmixed materials—Continued

Fertilizer Formula	Number Registered	Fertilizer Formual	Number Registered
10–2.50–1	3	12–2–2	20
10–2.50–3	12	12–2–3	1
10–3–0	8	12–2–4	3
10–3–1	5	12–2–10	1
10–3–2	9	12–2.47–3	1
10–3–3	27	12–2.47–10	1
10–3–4	4	12–3–0	7
10–3–5	1	12–3–3	18
10–3.29–0	1	12–3.28–4	1
10–3.29–2	1	12–3.30–4	3
10–3.29–4	2	12–4–0	5
10–3.29–7	2	12–4–2	5
10–3.30–0	1	12–4–3	2
10–3.30–4	1	12–4–4	27
10–4–0	19	12–4–6	1
10–4–2	17	12–4.94–6	2
10–4–3	1	12–11–15	1
10–4–4	13	12.28–5.91–0 (a)	1
10–5–0	1	13–1.23–0 (a)	1
10–5–2	1	14–0–6	1
10–5–3	1	14–2–2	1
10–5.75–7	1	14–4–4	1
11–0–3	4	14.50–5.60–0	1
11–1.50–1.50	4	15–0–5	2
11–1.65–0	5	15–0–6	1
11–1.65–1	1	15–0–10	1
11–2–0	3	15–4.11–5	2
11–2–2	2	16–0–0 (a)	33
11–2.25–0	1	16–0–5	1
11–2.47–0	1	16–4–4	1
11–3–2	2	17–0–0 (a)	1
11.50–1.65–0	2	17–2.85–0	1
11.50–1.80–0	1	18–0–0	30
12–0–0 (a)	1	18–3.20–7	1
12–0–2	5	18–6–6	1
12–0–4	13	20–0–0 (a)	8
12–0–8	1	20–3.33–5	1
12–1.65–0	5	22–3.70–0 (a)	4
12–1.65–1	1	23–3.70–0	1
12–1.65–2	9	23.83–4.85–0 (a)	1
12–1.65–4	1	24–2.47–0 (a)	2
12–2–0	2	27–2–0	1
12–2–1.50	4	29–1.86–0 (a)	1

Table 9 shows the tonnage of the standard formulas and some other fertilizers sold in 1924-25 and of practically all fertilizers sold in 1925-26. The cottonseed meal included is that tagged with fertilizer tags. Considerable amounts of cottonseed meal tagged with feed tags are, no doubt, used for fertilizer in Texas, but there is no way of finding out how much. About 70 per cent of the sales consist of 10-3-3, 10-2-2, 12-4-4 and of 18 per cent and 16 per cent acid phosphate.

Table 9.—Tons of fertilizer sold in Texas in order of tonnage for 1925-26

	1925-26	1924-25	1923-24
Acid Phosphate 18%	19515	7467*	6180*
10–3–3 Fertilizer	19055	.....	.....
10–2–2 Fertilizer	15089	.....	.....
12–4–4 Fertilizer	13794	5589	3083
Acid Phosphate 16%	13493	16837	26386
Cottonseed Meal tagged as Fertilizer	4396	2613	2559
Acid Phosphate 20%	3992	.....	.....
8–4–4 Fertilizer	3985	1595	745
10–4–2 Fertilizer	3790	2036	1165
12–3–3 Fertilizer	3532	3653	2943
Mixed Fertilizer, not listed elsewhere	2771	49180	74713
8–4–6 Fertilizer	3133	859	203
Nitrate of Soda	2614	1873	1558
12–2–2 Fertilizer	2243	2442	2551
8–3–3 Fertilizer	2184	.....	.....
15–4 .11–5	1984	.....	.....
Kainit	1030	827	628
15–0–6 Fertilizer	899	.....	.....
Sulphate of Ammonia	669	1125	535
10–6–7 Fertilizer	630	.....	.....
Muriate of Potash 50%	569	186	169
Miscellaneous unmixed	533	455	1307
8–3–5 Fertilizer	459	.....	.....
12–0–4 Fertilizer	337	533	388
10–4–0 Fertilizer	332	162	307
Bone Meal	318	.....	.....
12–3–0	261	216	682
Manure Salts	112	.....	.....
9–6–3 Fertilizer	80	.....	.....
18–6–6 Fertilizer	79	.....	.....
7–5–5 Fertilizer	66	64	65
8–7–0 Fertilizer	32	9	13
16–8–12 Fertiliaer	6	.....	.....
Sulphate of Potash	2	.....	.....
Total	121,984	97,720	126,180

*Both 18% and 20% Acid Phosphate.

Average Composition of All Fertilizer Sold

It is practically impossible to estimate the average composition of all fertilizers sold, though it may be closely estimated for 1925-26 from the data in Table 9. For previous years, an estimate can be made by assuming that the fertilizer is sampled in proportion to the amount sold, and averaging all the samples reported in the annual fertilizer bulletin. This assumption is, of course, not correct, but this method is the only one at present that offers an approximate estimate of the average composition of fertilizer sold in Texas for past years. Table 10 contains such estimates with the nearly correct average for 1925-26 calculated from Table 8. A study of the table shows that the estimated composition may vary quite widely from the actual. This is due to the fact that the number of samples analyzed of each particular brand is not in proportion to the quantity of the brand sold.

The average guaranteed valuation of fertilizers sold in 1925-26 was $29.79 a ton; the average retail selling price was $35.20; and the total retail value was $4,269,207.

Table 10.—Average guaranteed composition of all samples of fertilizer analyzed during the periods given

	Phosphoric Acid, Per Cent	Nitrogen, Per Cent	Potash, Per Cent
From Bulletin 85, 1905-6	10.09	2.06	4.83
From Bulletin 140, 1910-11	10.47	2.07	3.30
From Bulletin 168, 1913-14	9.82	1.90	2.19
From Bulletin 176, 1914–15	10.08	2.23	1.93
From Bulletin 322, 1924-25	11.02	3.17	2.22
From Bulletin 346, 1925-26	10.63	4.16	3.12
From actual sales of the various brands reported 1925–26.	12.36	2.57	2.62

Composition of Fertilizers Sold by Counties

Table 11 contains, for a few selected counties, the average composition of all fertilizer, of all mixed fertilizer, and the percentage of tons sold unmixed, the percentage of phosphoric acid sold unmixed, of nitrozen sold unmixed, and of potash sold unmixed. These calculations were made from the reports of the various manufacturers and are subject to the same errors previously mentioned in connection with county sales.

The fertilizer sold in Webb County is used chiefly for onions; that in Jefferson County was chiefly for rice, and in the other counties for mixed farming with cotton probably predominating.

Table 11.—Average percentage composition of all fertilizer and of mixed fertilizer, and percentage of total tonnage, of phosphoric acid, potash and nitrogen sold unmixed

Year	All Fertilizer			Mixed Fertilizer			Unmixed			
	Per Cent Phosphoric Acid	Per Cent Nitrogen	Per Cent Potash	Per Cent Phosphoric Acid	Per Cent Nitrogen	Per Cent Potash	Per Cent of Total Sacks	Per Cent Phosphoric Acid	Per Cent Nitrogen	Per Cent Potash
Brazoria County										
1911–12	10.7	2.2	2.5	9.2	2.1	2.2	6.9	14.7	1.56	12.9
1912–13	9.2	1.7	3.5	9.3	1.8	2.5	5.0	4.9	2.1	33.7
1913–14	11.5	1.8	3.0	11.8	1.8	1.9	5.1	3.0	3.6	39.5
1914–15	11.5	1.7	1.3	8.9	1.6	2.3	43.1	59.6	50.7	5.8
1916–17	1.5	0.8	0.2	11.6	1.8	0.8	72.5	78.5	36.9	0
1917–18	12.6	0.8	0.3	12.6	2.0	0.9	66.3	66.3	11.6	0
1918–19	15.0	0.1	0	0	0	0	100.0	100.0	100.0	0
1919–20	13.8	0.5	0.5	9.5	1.7	1.7	69.0	78.7	0	0
1920–21	13.6	3.0	1.4	18.1	5.6	2.3	85.2	80.3	72.7	76.2
1921–22	14.7	1.1	0.5	12.6	3.3	1.6	78.9	81.9	35.6	27.2
1922–23	8.9	.81	2.7	8.9	0.7	2.8	1.3	1.3	11.8	0
Cass County										
1911–12	9.4	1.6	1.5	9.1	1.7	1.6	5.9	8.7	1.5	1.9
1912–13	9.7	1.5	1.5	9.0	1.7	1.7	12.0	18.1	3.2	3.2
1913–14	9.8	1.7	1.5	9.3	1.8	1.7	8.6	13.5	0.6	1.0
1914–15	10.1	1.6	1.2	9.6	1.7	1.3	7.6	11.5	1.6	0
1915–16	11.7	1.3	0.3	10.2	1.7	0.4	25.8	35.2	0	0
1916–17	9.8	1.3	0.7	8.1	1.7	0.9	26.4	39.5	0	0
1917–18	11.0	1.2	0.5	9.1	1.7	0.8	28.1	40.7	0	0
1918–19	11.0	1.4	0.3	8.5	2.1	0.5	34.4	49.6	0.1	0
1919–20	11.4	1.5	0.6	10.1	1.9	0.8	23.5	32.8	1.3	0
1920–21	15.0	0.3	0.4	9.8	2.0	2.6	88.2	92.3	26.8	27.2
1921–22	10.2	1.1	1.1	5.4	1.9	2.0	45.1	70.9	3.2	0
1922–23	12.0	1.3	1.2	10.0	1.9	2.1	32.5	43.7	5.9	0.6
1923–24	11.7	1.9	1.9	10.4	2.4	2.5	26.2	34.9	4.2	2.2
Cherokee County										
1912–13	9.8	1.6	1.2	9.0	1.7	1.3	13.8	20.9	4.0	6.0
1913–14	8.6	2.1	1.3	7.7	2.3	1.3	12.8	21.4	3.1	11.3
1914–15	10.9	1.6	0.8	9.2	2.1	1.1	28.5	40.3	7.1	0
1915–16	11.3	1.8	0.1	9.9	2.2	0.1	22.9	32.2	2.7	0
1916–17	10.6	1.8	0.5	9.7	2.1	0.6	14.5	21.4	2.0	0.1
1917–18	9.2	1.7	0.5	7.7	2.0	0.6	17.7	31.0	9.7	0
1918–19	11.3	1.4	0.5	9.5	1.8	0.6	25.3	36.9	3.5	0
1919–20	10.9	1.8	0.6	9.9	2.1	0.7	16.1	23.3	3.9	0
1920–21	13.0	0.4	0.3	9.6	1.1	0.7	57.7	68.7	67.7	4.3
1921–22	9.8	2.3	1.3	9.5	2.4	1.4	12.1	14.7	10.4	5.4
1922–23	10.8	2.2	1.4	9.3	2.8	1.9	24.9	34.9	10.4	0
1923–24	10.5	2.9	1.9	9.3	3.3	2.4	23.0	32.3	9.4	0.6

Table 11.—Average percentage composition of all fertilizer and of mixed fertilizer, and percentage of total tonnage, of phosphoric acid, potash and nitrogen sold unmized—Continued

Year	All Fertilizer			Mixed Fertilizer			Unmixed			
	Per Cent Phosphoric Acid	Per Cent Nitrogen	Per Cent Potash	Per Cent Phosphoric Acid	Per Cent Nitrogen	Per Cent Potash	Per Cent of Total Sacks	Per Cent Phosphoric Acid	Per Cent Nitrogen	Per Cent Potash
Hunt County										
1911–12	8.6	1.2	3.2	8.7	1.3	2.6	2.3	1.2	0	2.3
1913–14	9.6	2.0	2.2	9.5	2.0	2.2	2.2	3.1	0.7	0
1914–15	9.4	2.9	1.4	9.3	2.3	1.8	19.4	20.3	37.6	0
1921–22	11.9	0.9	1.6	9.6	1.3	2.6	39.4	51.4	17.8	0
1922–23	9.9	2.2	1.5	9.9	1.9	1.6	7.0	7.2	18.5	0
Jefferson County										
1911–12	10.2	0.8	2.3	10.2	0.7	2.2	3.9	4.2	9.5	8.6
1912–13	10.4	0.5	3.1	10.4	0.5	3.1	1.0	1.1	3.7	1.8
1913–14	10.1	0.7	2.9	10.1	0.7	2.9	1.2	1.3	5.5	0.5
1914–15	11.3	0.4	2.0	10.1	0.5	2.6	21.1	29.1	5.1	0
1921–22	15.2	0.6	0.4	12.6	1.8	1.3	69.8	75.0	3.8	0
1922–23	15.6	0.9	0.6	12.6	2.8	1.9	71.6	77.0	14.5	2.6
1923–24	14.5	0.5	0.2	9.8	1.7	0.6	72.6	81.9	3.0	0
Rusk County										
1911–12	10.1	1.7	1.4	9.7	1.5	1.6	11.0	13.7	10.8	0.1
1912–13	10.3	1.5	1.2	9.9	1.7	1.3	12.3	16.1	1.8	1.6
1913–14	9.6	1.9	1.2	9.1	2.0	1.3	7.5	12.0	0.9	1.5
1914–15	9.1	2.0	1.1	8.7	2.1	1.1	6.0	10.5	0	0
1915–16	10.0	1.9	0.3	9.2	2.1	0.3	11.5	18.4	0	0
1916–17	8.0	2.3	0.6	7.5	2.4	0.6	6.6	12.9	0	0
1917–18	10.1	1.6	0.9	9.8	1.7	0.9	4.5	7.1	0	0
1918–19	10.5	1.7	0.4	9.8	1.9	0.4	11.8	17.9	0.2	0
1919–20	10.4	1.6	0.8	10.1	1.7	0.8	6.2	9.1	0.1	0
1920–21	14.4	0.5	0.2	9.7	1.7	0.6	72.4	80.4	2.2	9.4
1921–22	10.4	1.6	1.3	9.5	1.8	1.5	13.7	21.0	0.9	0.1
1922–23	10.8	1.9	1.8	10.0	2.1	2.2	16.2	22.5	5.4	2.5
1923–24	11.3	2.1	2.2	9.1	2.6	2.6	23.7	33.5	4.7	0.9
Smith County										
1911–12	10.3	2.0	1.2	9.5	2.1	1.5	19.0	25.5	11.1	5.7
1912–13	9.6	1.6	1.2	9.4	1.9	1.5	19.5	21.1	1.9	1.6
1913–14	9.7	2.0	1.6	9.4	2.2	1.5	11.0	14.4	16.9	3.0
1914–15	9.8	2.3	1.0	8.5	2.7	1.1	18.9	29.3	5.0	12.6

1915–16	9.5	2.3	0.4	7.8	3.0	0.4	21.3	35.7	0.2	2.5
1916–17	10.1	2.0	0.5	8.3	2.6	0.6	24.8	38.4	1.6	0
1917–18	10.8	1.5	0.3	9.7	1.8	0.4	17.7	26.3	0	0
1918–19	11.1	1.1	0.6	7.4	1.8	0.1	42.4	61.5	1.0	0
1919–20	10.1	2.5	0.5	8.5	3.1	0.7	20.9	33.1	0.4	0
1920–21	14.4	0.7	0.3	9.6	2.6	1.3	79.8	86.6	26.6	15.5
1921–22	10.4	2.4	1.9	8.8	2.6	2.6	30.1	40.5	23.6	1.4
1922–23	11.4	1.8	1.5	10.3	2.0	2.0	24.2	31.4	17.9	2.0
1923–24	11.4	2.0	1.8	9.5	2.7	2.2	33.5	44.5	12.2	5.6
Webb County										
1911–12	5.7	5.4	5.6	6.2	4.6	5.6	19.0	12.1	24.8	14.2
1912–13	7.1	3.9	4.8	7.2	3.5	5.1	7.2	3.1	14.6	0.7
1913–14	6.9	4.0	4.7	7.4	3.1	5.0	9.9	3.4	29.9	3.7
1914–15	7.2	4.0	2.7	6.0	4.2	3.1	19.6	32.7	17.3	5.2
1915–16	5.5	4.5	1.0	4.8	4.4	1.1	12.9	25.0	13.9	0
1916–17	5.8	4.9	0.2	5.9	4.4	0.2	7.8	9.4	16.8	0
1917–18	9.8	4.6	0	10.1	4.3	0	7.4	5.1	13.1	0
1918–19	8.4	3.3	0	7.9	3.4	0	3.1	9.0	0	0
1919–20	6.1	3.9	1.5	5.8	5.0	1.6	4.2	9.3	2.0	0
1920–21	7.2	4.6	1.6	7.6	2.5	1.9	18.0	13.0	39.7	0
1921–22	6.7	4.2	3.6	7.2	3.2	4.0	10.7	4.7	32.0	0
1922–23	7.9	4.4	3.6	7.8	3.6	4.5	20.0	21.1	34.8	0
1923–24	8.1	3.8	5.3	8.8	3.5	5.5	2.9	0	11.4	0.1

Assumed Valuations

Table 12 contains the assumed valuations of phosphoric acid, potash, and nitrogen.

Tables 13 and 14 contain the relation between the valuations and retail selling prices of several grades of fertilizer. The prices were collected by the fertilizer inspectors at the time of sampling the fertilizer.

Table 15 contains the approximate prices paid for plant food, calculated on the assumption that Table 12 contains the correct ratio of prices, and that Table 14 contains correct proportions. The prices secured in this way are, of course, only approximate.

Table 12.—Fertilizer valuations, 1902-1926, in cents per pound

Year	Available Phosphoric Acid in Mixed Fertilizer and Bat Guano	Nitrogen in Mixed Fertilizer and Bat Guano	Potash	Total Phosphoric Acid in Bone and Tankage	Total Nitrogen in Bone and Tankage
1902–3	7	13	5	.....	.....
1903–4	7	13	5	.....	.....
1905–6	6	16	5	4	12
1906–7	6	16	5	4	12
1907–8	6	17	6	4	13
1908–9	6	17	6	4	13
1909–10	6	19	6	4	17
1910–11	6	20	6	4	19
1911–12	6	20	6	4	19
1912–13	6	20	6	4	19
1913–14	6	20	6	4	19
1914–15	6	20	6	4	19
1915–16	6	20	6	4	19
1916–17	6	20	6	4	19
1917–18	7½	35	25	5	.....
1918–19	7½	35	25	5	.....
1919–20	7½	30	20	5	.....
1920–21	7½	30	15	5	.....
1921–22	6	25	9	4	.....
1922–23	6	25	6	4	.....
1923–24	6	25	6	4	.....
1924–25	6	25	6	4	.....
1925–26	6	25	6	4	.....

Relation of Fertilizer Sales to Price of Cotton

The sales of fertilizer in Texas have shown a tendency to increase as the State grows older, the land remains longer in cultivation, and the need for fertilizer becomes greater on account of decreased producing power of some of the soils. Familiarity with fertilizer also encourages their use. There are fluctuations in the amounts of fertilizer used from year to year, and there seems to be some relation between the amount of fertilizer used and the price at which cotton is selling previous to the planting season.

Table 16 contains the sales of fertilizer in Texas and the prices of middling cotton on the first of the month in New Orleans. These prices were kindly furnished by Mr. Hester, secretary of the New

Orleans Board of Trade. The prices in each list begin with the year first given and continue into January next year, as the fertilizer season begins September 1. It is also desirable to estimate the relation as early as possible. The relation between the fertilizer sales and the price of cotton has been worked out by statistical methods, and the correlation factors found are given in Table 17.

The figures show that there is a relation between the fertilizer sales of one year and the prices of cotton during previous months. This relation is to be expected. It is also to be expected that the relation will not be close, as there are other important factors which affect the sales of fertilizers.

Table 13.—Average valuation and selling price of all fertilizers, 1909-1090, inclusive

	Valuation Per Ton	Selling Price Per Ton
1905–6	$20.83	$26.15
1906–7	19.78	25.81
1907–8	22.05	29.07
1908–9	20.55	26.22

Table 14.—Relation of valuation to selling price of fertilizer

	Bulletin 217 1916-17	Bulletin 233 1917-18	Bulletin 248 1918-19	Bulletin 265 1919-20	Bulletin 280 1920-21	Bulletin 298 1921-22	Bulletin 312 1922-23	Bulletin 322 1923-24	Bulletin 335 1924-25
Acid phosphate 16%.									
Valuation	$19.20	$24.00	$24.00	$24.00	$24.00	$19.20	$19.20	$19.20	$19.20
Selling price	20.95	25.05	29.72	29.82	29.73	23.19	23.36	22.99	23.51
Standard phosphate and nitrogen.									
Valuation	19.20	27.12	26.86	25.50	25.32	20.59	20.38	20.25	21.05
Selling price	27.23	37.46	44.11	43.38	39.58	32.48	33.75	32.33	31.33
High grade phosphate and nitrogen.									
Valuation	23.70	35.08	31.96	31.11	31.25	25.12	25.64	28.23	29.88
Selling price	32.01	44.79	48.78	47.06	43.11	35.61	36.73	38.36	40.59
Standard complete fertilizer.									
Valuation	19.82	33.09	32.32	29.48	28.33	22.18	21.43	21.46	21.55
Selling Price	32.76	46.29	51.91	46.79	44.09	33.45	33.37	33.58	33.78
High grade complete fertilizer.									
Valuation	23.50	40.67	40.50	38.74	35.66	28.97	26.81	29.57	31.79
Selling price	36.31	53.19	61.56	53.81	50.32	38.33	38.06	39.92	42.29
Nitrate of soda.									
Valuation	.....	.....	.....	89.23	88.98	74.46	74.80	74.83	75.27
Selling price	.....	.....	.....	102.50	77.61	74.36	76.90	73.28	74.44
Phosphate and potash.									
Valuation	.....	.....	.....	.....	25.50	19.80	18.40	19.80	19.40
Selling price	.....	.....	.....	.....	37.88	28.13	28.67	31.30	31.03

Table 15.—Approximate cost of plant food in cents a pound in various groups of fertilizer

Season	All Fertilizer	Acid Phosphate 16%	Standard Phosphate and Nitrogen	High Grade Phosphate and Nitrogen	Standard Grade Complete Fertilizer	High Grade Complete Fertilizer	Phosphate and Potash	Nitrate of Soda
Phosphoric Acid.								
1905–6	7.53							
1906–7	7.84							
1907–8	7.91							
1908–9	7.66							
1916–17		6.55	8.51	7.85	9.91	9.27		
1917–18		7.82	10.36	9.57	10.49	9.80		
1918–19		9.29	15.32	11.45	12.05	11.40		
1919–20		9.32	12.76	11.34	11.82	10.41		
1920–21		8.35	11.72	10.34	11.405	10.58	11.15	
1921–22		7.21	9.40	8.50	8.78	8.00	8.53	
1922–23		7.30	9.94	8.38	9.34	8.57	9.35	
1923–24		7.18	9.58	8.15	9.39	8.18	9.49	
1924–25		7.34	8.93	8.15	9.40	7.98	9.59	
Nitrogen.								
1905–06	20.08							
1906–07	20.91							
1907–08	22.41							
1908–09	21.69							
1916–17			28.36	26.16	33.04	30.90		
1917–18			48.34	44.66	48.93	45.75		
1918–19			57.47	53.41	56.21	53.20		
1919–20			51.03	45.36	47.28	41.64		34.47
1920–21			46.89	41.37	45.63	42.33		26.16
1921–22			39.18	35.43	36.58	33.33		24.95
1922–23			41.40	34.93	38.93	35.48		25.70
1923–24			39.90	33.95	39.13	34.08		24.48
1924–25			37.20	33.95	39.18	33.25		24.70
Potash.								
1905–6	6.28							
1906–7	6.54							
1907–8	7.91							
1908–9	7.66							
1916–17					9.91	9.27		
1917–18					34.95	32.68		
1918–19					40.15	38.00		
1919–20					31.52	27.76		
1920–21					22.82	21.17	22.29	
1921–22					13.17	12.00	12.79	
1922–23					9.34	8.51	9.35	
1923–24					9.39	8.18	9.49	
1924–25					9.40	7.98	9.59	

Table 16.—Average fertilizer sold and price of cotton in cents per pound on the first sale day of the month

Fertilizer, Tons	Season	Cotton, September	Cotton, October	Cotton, November	Cotton, December	Cotton, January
13,500	1905–6	10.38	10.44	10.75	11.38	11.56
19,200	1906–7	9.19	9.69	10.31	11.38	10.25
21,850	1907–8	13.56	11.63	10.50	11.38	11.38
23,800	1908–9	9.13	9.00	8.94	8.94	8.88
34,000	1909–10	12.44	13.19	14.44	14.25	15.75
52,985	1910–11	14.25	13.56	14.19	14.75	14.94
46,000	1911–12	11.50	10.19	9.38	9.19	9.19
75,500	1912–13	11.19	11.38	11.44	12.63	12.94
77,400	1913–14	12.44	14.00	13.75	13.06	12.81
17,500	1914–15	*8.63	8.06	7.06	7.31	7.50
21,500	1915–16	9.31	11.75	11.75	12.00	11.88
40,000	1916–17	15.63	16.00	18.13	20.25	17.13
58,000	1917–18	21.75	24.13	27.56	29.13	30.38
46,000	1918–19	34.50	33.13	29.50	28.75	30.75
56,700	1919–20	31.25	32.50	39.50	39.25	40.00
14,850	1920–21	29.25	23.00	20.75	15.50	14.00
33,000	1921–22	16.50	20.50	18.50	17.00	17.50
73,300	1922–23	21.75	20.00	24.00	25.25	26.50
126,180	1923–24	24.50	28.50	31.50	36.00	35.00
97,720	1924–25	23.84	24.95	23.00	23.00	23.80
121,000	1925–26	21.50	22.80	18.70	19.50	19.60

*As of September 23rd. Exchange closed account World War.

Table 17.—Value of correlation factor for fertilizer sales and price of cotton

September	.36 ± .19
October	.50 ± .11
November	.58 ± .10
December	.55 ± .10
January	.55 ± .10

SUMMARY AND CONCLUSIONS

(1) The Texas fertilizer law was passed in 1899 and changed in 1911. Fertilizer sales have increased from 13,500 tons in 1905 to 126,188 in 1923-24.

(2) Sales are given by years and months. The percentage of sales is also given. The heaviest sales occur in March.

(3) Sales by counties since 1911 are given, with a map for 1925-26. The counties in the northeastern part of the State use the most fertilizer.

(4) The number of formulas of mixed fertilizer have greatly decreased in the last few years, which is a decided advantage to manufacturers and consumers. A table containing the large number of formulas registered in 1924-25 is given.

(5) The quantity of each kind of fertilizer sold is shown for 1925-26. About 70 per cent of the sales were 10-3-3, 10-2-2, and 12-4-4, with 18 per cent and 16 per cent acid phosphate.

(6) The average composition of all fertilizer sold is given for 1925-26, with estimates for other years based on analyses. A comparison of the actual composition with the calculated composition shows that the calculated composition is far from accurate.

(7) The average composition is given of fertilizer sold in a few selected counties for a period of several years.

(8) Tables relating to valuations and prices are given.

(9) There is some relation between the sales of fertilizer in the spring and the prices of cotton in the fall and winter preceding.